

Supreme Court, U. S.
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MICHAEL RODAK, JR., CLERK

BNA

Supreme Court of the United States

October Term, 1975

No. 75-1405

MARSHALL FIELD & CO.,
Petitioner,

vs.

MARIAN SHOUP,
Respondent.

**ADDITIONAL APPENDIX TO
PETITION FOR A WRIT OF CERTIORARI
To the United States Court of Appeals
For the Seventh Circuit**

BRUCE B. KROST
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Counsel for Petitioner

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APPENDIX F

March 23, 1965

A. A. SHOUP

3,174,863

SMOKELESS BROILER

Filed Feb. 13, 1961

2 Sheets-Sheet 1

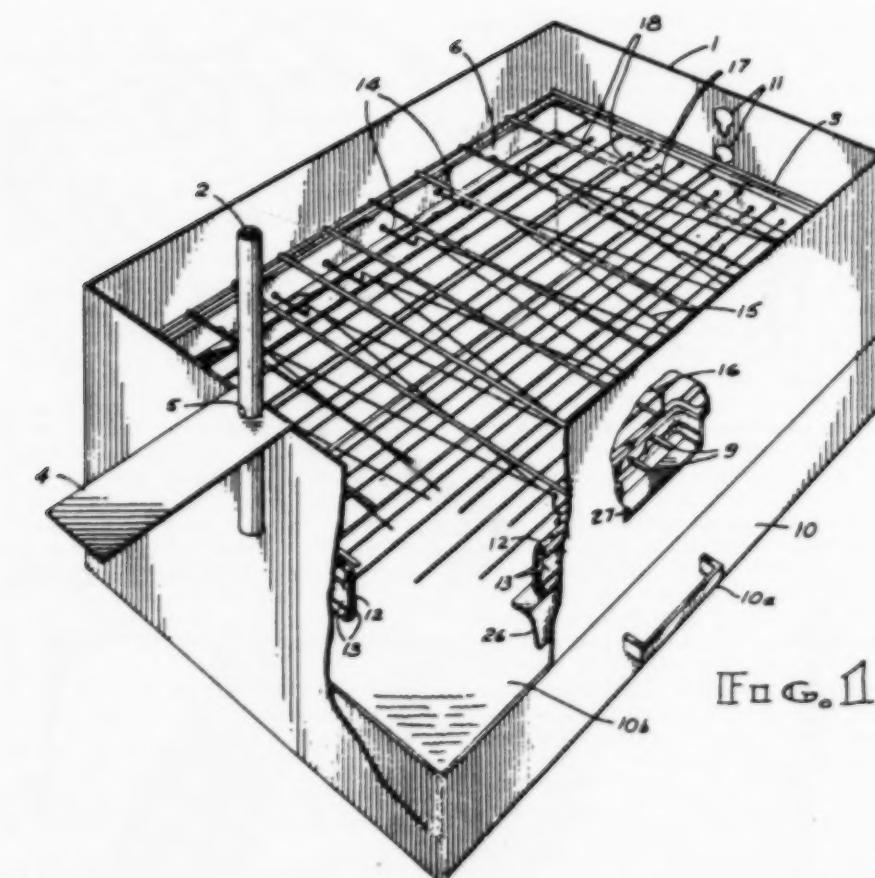


FIG. 1

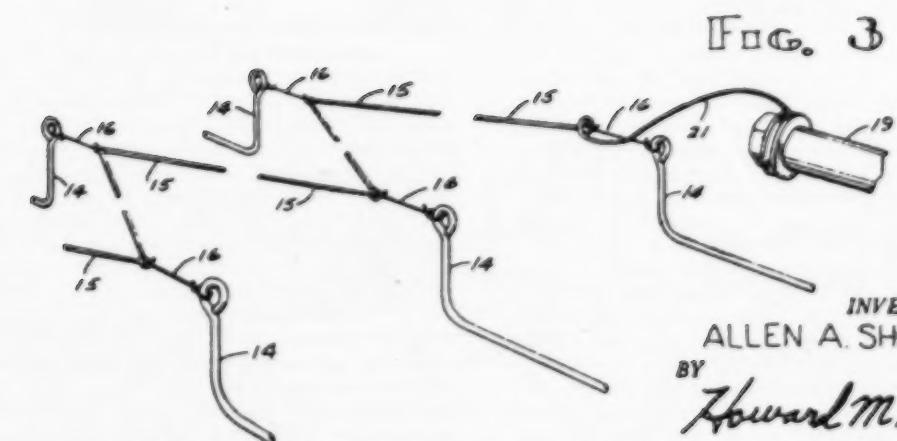


FIG. 3

INVENTOR
ALLEN A. SHOUP

BY
Howard M. Heriot
ATTY.

March 23, 1965

A. A. SHOUP
SMOKELESS BROILER

3,174,863

Filed Feb. 13, 1961

2 Sheets-Sheet 2

FIG. 2

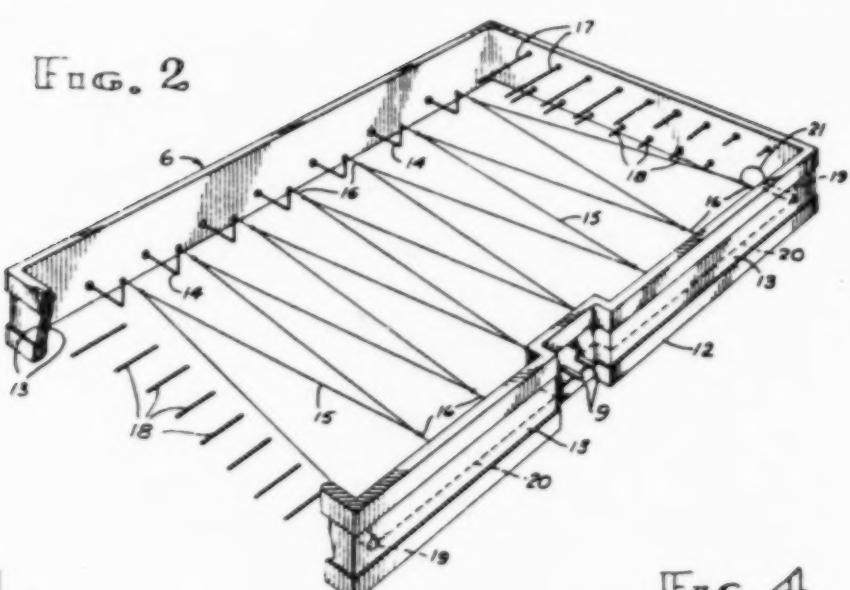


FIG. 4

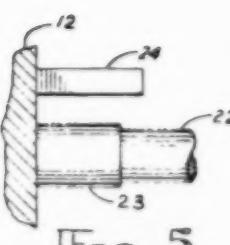
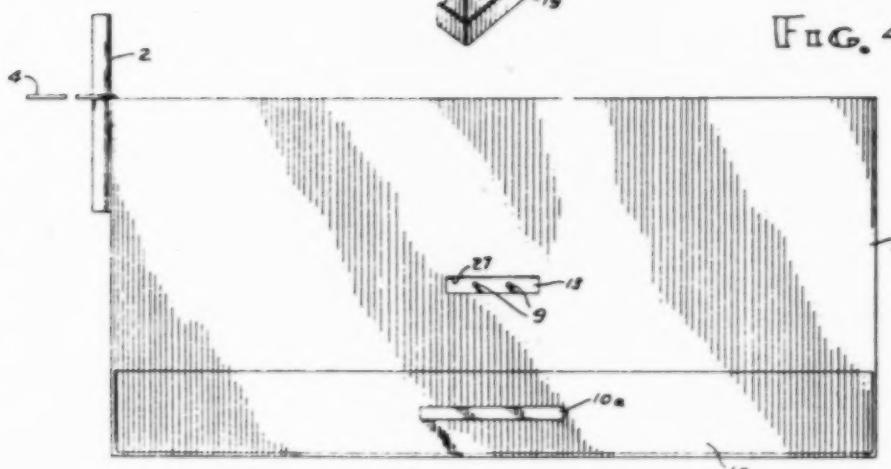


FIG. 5

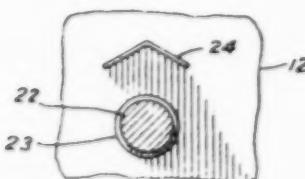


FIG. 6

INVENTOR
ALLEN A SHOUP

BY

Howard M Herist

ATTY

United States Patent Office

3,174,863

Patented Mar. 23, 1965

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3,174,863
SMOKELESS BROILER
Allen A. Shoup, Janesville, Wis., assignor, by mesne assignments, to Irene Schneider Trust
Filed Feb. 13, 1961, Ser. No. 88,868
6 Claims. (Cl. 99—1)

This invention relates in general to improved broiling means and in particular to a smokeless and flameless broiler.

The invention provides, in an electric broiler wherein a heating element is disposed directly beneath the food to minimize heat losses, means for preventing or minimizing both smoking and flaming even though fat drips down on the heating element of, and on other components of, the broiler.

Applicant has discovered that fats from foods, e.g., from meats, will not blaze or smoke upon contact with components if such components are maintained at temperatures outside of a certain range, said range herein-after referred to as the smoke and flame temperature range. That is, if a component is cold enough, no smoke or flame will occur when fat drips thereon; and if a component is hot enough, no smoke or flame will occur when fat drips thereon. Applicant has discovered that the smoke and flame temperature range is the range of approximately 408 degrees Fahrenheit to approximately 1400 degrees Fahrenheit.

To further explain, applicant has discovered that when fat drips upon a component at a temperature of about: Less than 408, neither smoke nor flame occurs; Over 408 and up to 850, smoke occurs without flame, the smoking increasing with increases in temperature; Over 850 and up to 1250, both flaming and smoking occur; Over 1250 and up to 1400, flaming occurs without smoke; and Over 1400, neither smoke nor flame occurs.

In prior art broilers, the components, upon which fat drips, are maintained at temperatures within the smoke and flame temperature range, and thus smoking and flaming occurs when fats drip upon such components.

Applicant has provided a new and improved broiler wherein the heating element is "hot" (i.e., is above 1400 degrees Fahrenheit, the upper end of the smoke and flame temperature range), and wherein the other components are either "cold" (i.e., below 408 degrees Fahrenheit, the lower end of the smoke and flame temperature range), or are "intermediate" (i.e., within the smoke and flame temperature range) but are shielded against contact with dripping fats by a shield, deflector or baffle which is either "cold" or "hot" and thus smoke-free and flame-free. Applicant's broiler is thus smokeless and flameless.

More particularly, the broiler of the invention includes a support means operating below the smoke and flame temperature range adapted to be mounted on a supporting surface and having a food supporting grill thereon and a heating element arranged below the grill. Intermediate supporting means is provided for supporting the heating element on the support means. The intermediate supporting means constitutes any or whatever means that may be provided between the support means and the heating element. The heating element is provided with surfaces exposed to the path of fats falling from food

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supported on the grill, wherein the surfaces are spaced apart to define spaces through which fats fall even if they strike the heating element. The surfaces are operated at a temperature above the smoke and flame temperature range, wherein fats impinging thereon will fall off and through the spaces without smoking and/or flaming. The grill is spaced a sufficient distance above the heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range. Moreover, the heating element is spaced a sufficient distance above a surface or pan on to which the fats fall so that the surface or pan as heated by the heating element operates below the smoke and flame temperature range. And the area below the grill through which the fats fall in which the intermediate supporting means is located is such a small portion of the entire area below the grill through which the fats fall that even though any part of the intermediate supporting means may operate within the smoke and flame temperature range, any smoke or flame produced by fats impinging thereon is negligible.

Among the objects and advantages of the invention is the provision of an electric broiler which: is smokeless, is flameless; is low in cost; cooks rapidly; cooks the fat out of the food; retains the juices and vitamins in the food; is extremely easy to clean; is of simple construction so as to minimize need of repair, yet easy to repair or service should the need arise; has a great margin of safety from both severe burns and electrical shock; is economical in the use of electricity and in minimizing shrinkage of food; cooks steaks properly searing the juices in one side without losing them out the other side; and cooks foods extremely deliciously.

These and other objects and advantages will appear from the following description, when read in conjunction with the accompanying drawings, wherein:

FIG. 1 is a perspective view of one embodiment of the broiler of this invention, with a fragment removed, to more fully disclose the details of the broiler;

FIG. 2 is a perspective view of the removable cooking unit of the broiler, with fragments removed therefrom for a clearer disclosure;

FIG. 3 is a fragmentary perspective view of the electric heating element of the removable cooking unit, and of the means supporting the electric heating element;

FIG. 4 is a front elevational view of the broiler;

FIG. 5 is a fragmentary side elevational view, partly in section of a second embodiment of the invention; and

FIG. 6 is a front elevational view of the embodiment shown in FIG. 5.

Referring to the drawings, there is shown a broiler having a tubular housing 1 which has four vertical or upright walls but has neither a top nor a bottom. On one side of the housing is mounted a vertical rod or post 2 which cooperates to provide vertical setting adjustability for a food supporting grill 3, by means of a grill handle 4 having an opening 5 therein only slightly larger than post 2. Thus, when held in a plane perpendicular to the post, the grill and grill handle may be moved up or down thereon to the desired position; and may be secured in the desired position by slightly cocking the grill and grill handle to lock the grill handle against the post. The grill handle 4 has a first portion extending vertically upwardly from the grill and a second portion extending horizontally away from the grill, forming a bent "goose neck"

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configuration which permits lowering the grill into the housing. Perfect broiling of steaks is accomplished by adjusting the grill to about $\frac{1}{2}$ inch from element 15 for searing, to about $1\frac{1}{2}$ inches from element 15 for cooling, and to about 3 inches from element 15 for keeping them warm prior to serving.

A removable cooking unit 6, which rests in housing 1 on a support 26, comprises a frame 12, preferably of about 12×16 inches, which supports all the components of unit 6. The frame 12, as shown, is of channeled configuration and has a pair of electrical insulating strips 13 disposed in the channel thereof. The frame 12 itself may, if desired, be made of an electrical insulation material. Mounted in the frame, and insulated therefrom by the insulating strips, is a pair of electric terminal pins 9 adapted to receive, through an opening 27 in the housing, a conventional electrical connector plug and cord accessory to connect the terminal pins to a conventional source of electrical energy of about 110 volts, 60 cycle, alternating current. The terminal pins 9 are connected to conductors 20 mounted in the insulating strip 13 so as to be insulated from frame 12, the conductors 20 connecting the terminal pins 9 with terminal posts 19 which are mounted in frame 12 and insulated therefrom by insulating strip 13. Connected to terminal posts 19 are the ends 21 of an electrical heating element 15, which preferably is a No. 21 Nichrome wire No. 245. Element 15 is arranged in a zig-zag fashion as shown, being supported at its points of reversal of direction by means including short fine wire links 16. The short links 16 are preferably about $\frac{1}{8}$ inch long and are of smaller diameter stock than element 15 and preferably are of No. 23 Nichrome wire No. 245. The short links 16 are supported by L-shaped bent wire of larger diameter than either the element 15 wire or the link 16 wire, and which act as springs tensioning element 15 so as to prevent undue slack which otherwise would occur upon expansion due to heating up of element 15 upon electrical energization.

Upper protective grid 17 is about $\frac{1}{4}$ inch from element 15. Lower protective grid 18 is about $\frac{1}{4}$ inch from element 15. Short links 16 are about $\frac{1}{8}$ inch in length thus spacing end links 14 that distance from element 15. The remaining components are even further from element 15 than those just mentioned and thus are "cold," i.e., below the range, and thus smokeless and flameless.

Mounted near the lower end of housing 1 is a removable fat drippings-and-water tray 10 slidably removable therefrom easily by a pull fixture 10a. The water tray may contain water in the bottom thereof as is indicated by reference numeral 10b. Fat dripping from the food drops into the water in tray 10 so that, after cooking, the fat may be easily poured out and the tray easily cleaned. For cooking very fatty foods, the presence of water is highly desirable. The tray is disposed close to the heating element 15 for efficiency and economics of space, but not so close as to cause fats in the tray to smoke or ignite. The correct distance has been found to be approximately $4\frac{1}{2}$ inches from heating element 15 to the bottom of tray 10.

Disposed in spaced relationship above element 15 is an upper protective grid 17 mounted in insulating strip 13 on frame 12 and insulated from the frame and the electric circuit. And disposed in spaced relationship below element 15 is a lower protective grid 18 mounted in insulating strip 13 on frame 12 and insulated from the frame and the electric circuit. These protective grids, in the event of breakage of element 15, confine the broken ends of the element within the grids to prevent or minimize possibility of the element touching the user, the food, the housing 1, the water tray 10 or the water 10b therein, and the grids being electrically isolated, will insulate a broken electric element from all parts of the broiler other than the isolated rods of the protective grids.

The grids 17 and 18 consist of a plurality of separate rods, each mounted rotatably in the frame. This feature provides easy cleaning of the rods when washing unit 6, in that when rubbed with a cloth, sponge, or other cleaning device, the rods rotate and all sides thereof are thus easily cleaned. Each rod is electrically isolated from every other rod and from all other structure of the broiler.

The electrical circuit for heating element 15 is thus seen to be, from the source of electrical energy, to one of the terminal pins 9, thence to one of terminal posts 19 via one of the conductors 20, thence through element 15 to the other of the terminal posts 19, thence via the other of the conductors 20 to the other of terminal pins 9, and back to the source of electrical energy. It is also

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thus seen that the electric circuit is insulated from all other parts of the broiler, and even in the event of breakage of element 15 is still insulated from the frame and housing.

In the embodiment shown in FIGS. 1-4, inclusive, all portions of the entire broiler are at temperatures outside of the smoke and flame temperature range.

Heating element 15 operates "hot," i.e., above the range, for example at over 2200 degrees F. and preferably about up to 2300 degrees F.

Each short link 16 of the fine high resistance wire, at its end in contact with element 15, becomes hot (i.e., above the range), and at its other end is cold (i.e., below the range). Only a negligible tiny spot or portion intermediate its ends is at a temperature within the range, but is so small that any fat striking it splatters off without smoking or flaming.

Terminal posts 19 may also have a small portion, at the spot where element 15 contacts the posts, that may come within the range, but it is also negligible when compared to the entire area, and is disposed at the ends where fat drippings are less likely. For complete assurance, a deflector shield or baffle, such as baffle 24, which is maintained at temperatures outside the range, may be placed above posts 19 to insure no smoking or flaming, as is illustrated in FIGS. 5 and 6.

All of the other components of the broiler are spaced sufficiently from element 15 so as to be cold (i.e., below the range).

Upper protective grid 17 is about $\frac{1}{4}$ inch from element 15. Lower protective grid 18 is about $\frac{1}{4}$ inch from element 15. Short links 16 are about $\frac{1}{8}$ inch in length thus spacing end links 14 that distance from element 15. The remaining components are even further from element 15 than those just mentioned and thus are "cold," i.e., below the range, and thus smokeless and flameless.

Disposed in spaced relationship above element 15 is an upper protective grid 17 mounted in insulating strip 13 on frame 12 and insulated from the frame and the electric circuit. And disposed in spaced relationship below element 15 is a lower protective grid 18 mounted in insulating strip 13 on frame 12 and insulated from the frame and the electric circuit. These protective grids, in the event of breakage of element 15, confine the broken ends of the element within the grids to prevent or minimize possibility of the element touching the user, the food, the housing 1, the water tray 10 or the water 10b therein, and the grids being electrically isolated, will insulate a broken electric element from all parts of the broiler other than the isolated rods of the protective grids.

The frame 12 is of such size, and construction so that the removable unit 6 fits easily within water tray 10. This provides the convenient utility, when done cooking, of being able to wash unit 6 in water tray 10, by submerging unit 6 in water in tray 10.

Grill 3 is also of such size and construction so that it also fits easily within water tray 10 for such convenient washing. The upwardly bent "goose-neck" grill handle 4 of the grill permits the grill to be placed in the water tray, just as it permits the grill to be placed in the housing 1.

FIGS. 5 and 6 illustrate another embodiment of the invention wherein a heating element 22 is "hot" (i.e., is at a temperature above the smoke and flame temperature range), but herein the support 23 for element 22, and perhaps a small portion of the end of element 22, is "intermediate" (i.e., within the smoke and flame temperature

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range). Thus, if fats were to drip on the support 23, smoking and/or flaming would result. To eliminate smoking and flaming, there is provided a deflector shield or baffle 24 which is either "hot" or "cold" (i.e., is outside of the smoke and flame temperature range). Fats will thus hit baffle 24 and not smoke or flame, and the fats are deflected from support 23. The baffle 24 may be a cold member (i.e., below the range), or may be a hot member (i.e., an element heated so as to be above the range). Element 22 may be, for example, a Globar heating element, which operates at temperatures above the range, e.g., at about 2300 degrees F., but which is usually mounted in such a way so that the end support member and a small portion of the end of the element is within the range. Element 22 could alternatively be No. 21 Nichrome wire No. 245 such as hereinbefore described for element 15, but mounted in such a way that the mounting and perhaps a small portion of the element are within the range.

Applicant has thus provided a novel broiling means and method for broiling smoke-free and flame-free, by providing, in the first embodiment, a hot heating element, and all other components cold. In the second embodiment applicant provides a hot heating element, cold components, and intermediate components, wherein the intermediate components are shielded from fats by either a hot or a cold baffle means.

Having thus described the invention, what is claimed as new and desired to be secured by Letters Patent, is:

1. A broiler comprising, support means operating below the smoke and flame temperature range adapted to be supported on a supporting surface, a food supporting grill on said support means, a heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame temperature range and spaces between said surfaces through which fats fall, means for supporting said grill a distance above said heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range, said heating element being spaced a sufficient distance above a surface on to which the fats fall so that said surface as heated by the heating element operates below the smoke and flame temperature range, the area of said intermediate supporting means upon which fats may fall being such a small portion of the entire area below the grill through which the fats fall that any smoke or flame produced by fats falling on the intermediate supporting means is negligible.

2. A method of broiling foods comprising, the steps of, placing food on a grill positioned above a heating element having surfaces exposed to the path of fats falling from said food and spaces therebetween through which fats fall, operating said surfaces above the smoke and flame temperature range, providing support means operating below the smoke and flame temperature range for said grill, providing intermediate means for supporting the heating element on said support means, spacing said grill a sufficient distance above the heating element to maintain the temperature of the grill as heated by the heating element below the smoke and flame temperature range, spacing said heating element a sufficient distance above a lower surface on to which said fats fall so that said lower surface as heated by the heating element operates below the smoke and flame temperature range, and means operating outside of the smoke and flame temperature range for shielding said intermediate supporting means against falling fats.

3. A broiler comprising, support means operating below the smoke and flame temperature range adapted to be supported on a supporting surface, a food supporting grill on said support means, a heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said intermediate supporting means being located a sufficient distance from the area in which fats normally fall so that any smoke or flame produced by fats falling thereon is negligible, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame tempera-

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grill on said support means, a heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame temperature range and spaces between said surfaces through which fats fall, means for supporting said grill a distance above said heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range, a fat collecting pan spaced a sufficient distance below said heating element so that said pan into which fats fall as heated by said heating element operates below the smoke and flame temperature range, said pan having water therein for facilitating the removal of fats therefrom, the area of said intermediate supporting means upon which fats may fall being such a small portion of the entire area below the grill through which the fats fall that any smoke or flame produced by fats falling on the intermediate supporting means is negligible.

4. A broiler comprising, support means operating below the smoke and flame temperature range adapted to be supported on a supporting surface, a food supporting grill on said support means, an electrically operated heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame temperature range and spaces between said surfaces through which fats fall, means for supporting said grill a distance above said heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range, said heating element being spaced a sufficient distance above a surface on to which the fats fall so that said surface as heated by the heating element operates below the smoke and flame temperature range, the area of said intermediate supporting means upon which fats may fall being such a small portion of the entire area below the grill through which the fats fall that any smoke or flame produced by fats falling on the intermediate supporting means is negligible.

5. A broiler comprising, support means operating below the smoke and flame temperature range adapted to be supported on a supporting surface, a food supporting grill on said support means, a heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame temperature range and spaces between said surfaces through which fats fall, means for supporting said grill a distance above said heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range, said heating element being spaced a sufficient distance above a surface on to which the fats fall so that said surface as heated by the heating element operates below the smoke and flame temperature range, the area of said intermediate supporting means upon which fats may fall being such a small portion of the entire area below the grill through which the fats fall that any smoke or flame produced by fats falling on the intermediate supporting means is negligible.

6. A broiler comprising, support means operating below the smoke and flame temperature range adapted to be supported on a supporting surface, a food supporting grill on said support means, a heating element arranged below said supporting grill, intermediate means for supporting said heating element on said support means, said intermediate supporting means being located a sufficient distance from the area in which fats normally fall so that any smoke or flame produced by fats falling thereon is negligible, said heating element having surfaces exposed to the path of fats falling from food supported on said grill operating above the smoke and flame tempera-

ture range and spaces between said surfaces through which fats fall, and means for supporting said grill a distance above said heating element so that the temperature of the grill as heated by the heating element is below the smoke and flame temperature range, said heating element being spaced a sufficient distance above a surface on to which the fats fall so that said surface as heated by the heating element operates below the smoke and flame temperature range.

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ROBERT E. PULFREY, Primary Examiner.

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GEORGE A. NINAS, JR., A. H. WILKELSTEIN, A.
 18 LEWIS MONACELL, JEROME SCHNALL,
 Examiners.

APPENDIX G

SUBSCRIPTION AGREEMENT

We, the undersigned, hereby subscribe for and agree to

take and pay for the number of shares of the capital stock of the

SHOUP ENGINEERING CORP. set opposite our respective names and

post office addresses, and pay therefor the sum of money set

opposite our names, or by assigning all right, title and interest

in the personall property set opposite our names to said corporation.

NAME	P. O. ADDRESS	NO. OF SHARES	AMOUNT
Myron Haack	1309 Hawthorne Janesville, Wisconsin	1,000	\$1,000.00
E. G. Anderson M. D.	x Janesville, Wisconsin	1,000	\$1,000.00
Marian Waite	12221 Eggleston Chicago, Illinois	10,000	\$10,000.00
Allen A. Shoup	1309 Hawthorne Janesville, Wisconsin	88,000	All right, title and interest in the design, patent, labor and material and any other right in a smokeless electric broiler,Broilitizer by trade name and general recognition.

Dated At
March 14, 1961 New Berlin, Wisconsin

The image contains four handwritten signatures in black ink. From top to bottom: 1) "Allen A. Shoup" in cursive script. 2) "Myron Haack" in a bold, sans-serif font. 3) "Marian Waite" in cursive script. 4) Another signature that appears to be "Allen A. Shoup" again, written in a different style or possibly a different day.

APPENDIX H

ASSTGNMENT

For value received, now and in the future, the SHOUP ENGINEERING CORPORATION, a Wisconsin Corporation, hereby assigns all rights, titles and interest, except for a previous assignment for Five Thousand (\$5000.00) Dollars in patent application 88 868 filed February 13, 1961, to the IRENE SCHNEIDER TRUST.

Also assigned is all rights, title and interests created by an agreement with McGraw-Edison Company dated October 30, 1962, which is a royalty agreement covering the above patent.

DATED October 25th, 1963.

WITNESSED BY:
Robert D. Read
 ROBERT D. READ
Laura M. Frame
 LAURA M. FRAME

Subscribed and sworn to before me

ROBERT D. READ
 Notary Public, Walworth County, Wisconsin
 "My commission is permanent."

SHOUP ENGINEERING CORPORATION
 By: Allen A. Shoup
 Allen A. Shoup, President

this 25th day of October, 1963.

STATE OF WISCONSIN)
 WALWORTH COUNTY)

I, Lois M. Ketterhagen, Register of Deeds of said County do hereby certify that the copy hereunto annexed has been compared by me with the original record of Assignment, Shoup Engineering Corp. to Irene Schneider Trust, recorded in Vol. 608 Pages 49-50 of Deeds, Walworth County Records

Now on record in my office and required by law to be in my custody and in my office, and that said copy is a true copy of said record and the whole thereof.

IN TESTIMONY WHEREOP, I have hereunto set my hand and affixed the seal of the Walworth County Register of Deeds at the City of Elkhorn, in the said County, this 24th day of September 1973.

Lois M. Ketterhagen
 Lois M. Ketterhagen asst.
 Register of Deeds

5-61954

REGISTERS OFFICE }
Waukesha Co., WI }
Recorded for record date 31
day of July 1965, at p.m.
Said A.M. and Recorded to Vol. 69, p.
Date of Record as per 49
Leonard D. Wickstrom
REGISTER OF DEEDS

APPENDIX I

A S S I G N M E N T

For and in consideration of One Dollar (\$1.00) to me in hand paid, and other valuable consideration, the receipt and sufficiency whereof are hereby acknowledged and confessed, I, Allen A. Shoup, of 1632 Lake Shore Drive, Lake Geneva, Wisconsin, warrant that I am the sole inventor and the sole and exclusive owner of application for United States Letters Patent Serial Number 88,868, filed February 13, 1961 and the invention disclosed therein, and I hereby sell, assign, transfer and set over unto Shoup Engineering Corporation, a Wisconsin corporation, having an office and place of business in East Troy, Wisconsin, nunc pro tunc as of March 14, 1961, pursuant to a subscription agreement executed on that date, the entire right, title and interest in and to said application and invention, together with all other rights pertaining to said application and invention.

IN WITNESS WHEREOF, I have hereunto subscribed my name at Chicago, Illinois, this 21st day of January, 1965.

Allen A. Shoup
Allen A. Shoup

STATE OF ILLINOIS }
COUNTY OF COOK } ss.

Subscribed and sworn to before me this 21st day of January, 1965.

John E. Hall
Notary Public
J.J.

(SEAL)

5-61954
Hawthorne & Bruder
Lake Geneva
150 pp. 1

APPENDIX J

A S S I G N M E N T

WHEREAS, IRENE SCHNEIDER TRUST, a trust created under the laws of the State of Wisconsin, hereinafter called the "ASSIGNOR", is the owner of the entire right, title and interest in and to United States Letters Patent 3,174,863, granted March 23, 1965, and the invention disclosed therein.

WHEREAS, MARIAN SHOUP, of Chicago, Illinois, hereinafter called the "ASSIGNEE", is desirous of acquiring the entire right, title and interest in and to said United States Letters Patent and the invention disclosed therein, as hereinafter more fully set forth.

NOW, THEREFORE, TO ALL WHOM IT MAY CONCERN, Be it known that for and in consideration of the sum of Ten Dollars (\$10.00), and other valuable and legally sufficient considerations, the receipt of which by the said ASSIGNOR from the said ASSIGNEE is hereby acknowledged, the said ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto the said ASSIGNEE the entire right, title and interest in and to the United States Letters Patent and the invention disclosed therein, to have and to hold for the sole and exclusive use and benefit of the said ASSIGNEE, to the full end of the term or terms for which said Letters Patent issued.

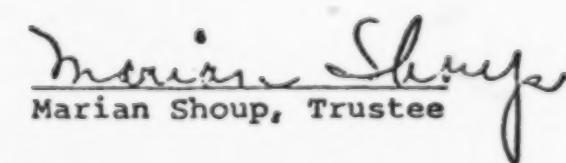
For the same consideration, the ASSIGNOR has sold, assigned and transferred, and by these presents does sell, assign and transfer unto said ASSIGNEE all the rights and

benefits accrued or accruing to the ASSIGNOR under said United States Letters Patent and the invention disclosed therein; and the right to sue for all past, present, and future infringements thereof and for all damages, or loss of profits sustained by reason of such infringement; and this Assignment includes all royalties which may be due, whether accrued or to accrue or to be paid in the future, as well as all licenses under which the ASSIGNOR has been or may be operating with respect to said inventions and patents.

The ASSIGNOR further agrees that it will execute and deliver to the ASSIGNEE any and all additional papers which may be requested by the said ASSIGNEE to fully carry out the terms of this Assignment, and that this Assignment conveys to the ASSIGNEE all the right, title and interest as fully and entirely as the same would have been held by the ASSIGNOR had this Assignment and sale not been made.

IN WITNESS WHEREOF, the said ASSIGNOR has caused this instrument to be executed this 1st day of April 1968.

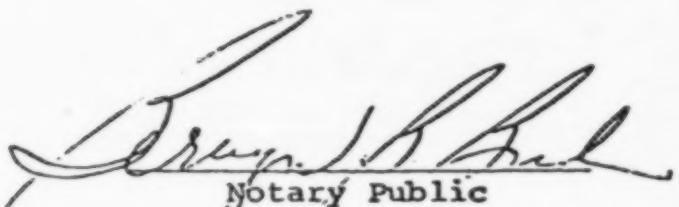
IRENE SCHNEIDER TRUST


Marian Shoup, Trustee


Robert D. Read, Administrator

STATE OF WISCONSIN)
COUNTY OF Richland) ss

On this 31 day of August, 1968, MARIAN SHOUP
and ROBERT D. READ, both personally known to me to be the
persons whose names are subscribed to the foregoing instru-
ment, personally appeared before me, and by me being duly
sworn, did each depose and say that they are Trustee and
Administrator, respectively, of the above-mentioned IRENE
SCHNEIDER TRUST, a trust created under the laws of the State
of Wisconsin; and they severally acknowledged that they signed,
sealed, and delivered the said instrument as their free and
voluntary act and the free and voluntary act and deed of said
Trust.



Troy J. Shul
Notary Public

(SEAL)